

Motor vehicle instrument cluster with image reflection

The invention relates to motor vehicle instrument clusters including a standard instrument cluster or 5 instrument panel mounted in a dashboard behind a semi-reflecting window through which the driver can see the panel and which reflects toward the driver the image of a component (display, dial, etc.) mounted above the window, in the visor of the dashboard, or below, near 10 the steering column.

Such instrument clusters have the disadvantage of occupying much space and requiring a thicker dashboard visor than car manufacturers would wish or causing an 15 installation problem due to the steering column which prevents lowering of the instrument cluster.

In addition, since the number of parameters to be displayed increases with the vehicle's control 20 functions, the display area continues to grow, but remains limited to that of the instrument cluster, i.e. fitted between the visor and the steering column.

Instrument clusters have already been proposed 25 including displays on the lower part of the top of the dashboard and made visible to the driver by reflection of its image on the window of the instrument cluster, suitably inclined. But displays requiring much space cannot be installed there. The top of the dashboard 30 would then become ugly.

Instrument clusters have also been proposed including displays on the lower surface of the instrument cluster and made visible to the driver by reflection of its 35 image on the window of the instrument cluster, inclined in the opposite direction from that of the previous solution. But, in that case also, because of the steering column, displays requiring much space cannot be installed.

The applicant had the idea, to solve the problem, not of seeking to overcome the disadvantage of the space required, but of removing this disadvantage completely.

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It is thus that this application relates to a motor vehicle instrument cluster comprising an instrument panel in two parts at least arranged on either side of a semi-reflecting window and respectively generally at 10 right-angles and generally parallel to the axis of vision, characterized in that the 'part of the instrument panel generally parallel to the axis of vision lies sideways to the frontal part of the instrument panel at right-angles to the axis of vision.

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Besides the fact that the lateral space required for an instrument cluster in the dashboard is not limited, which allows additional displays of whatever size to be fitted sideways in it, the lateral part of the 20 instrument panel can form a light box for the frontal part of the instrument cluster, even form a sight obstruction for the passenger seated beside the driver.

In the preferred embodiment of the inventive instrument 25 cluster, the frontal part of the instrument panel is surrounded by two lateral parts generally parallel to the axis of vision.

Advantageously, the semi-reflecting window includes at 30 least one inclined semi-reflecting portion over the two parts of the instrument panel and one portion parallel to the frontal part of the instrument panel.

Preferably, the window of the instrument cluster is in 35 one piece.

The invention will be better understood with the help of the following description of the preferred

embodiment of the instrument cluster, with reference to the accompanying drawing, in which:

- Figure 1 is a frontal view, from the front, of the instrument cluster, and;
- 5 - Figure 2 is a sectional view of the instrument cluster along the line II - II of Figure 1.

The instrument cluster 1 that will now be disclosed includes several parts including one frontal part 10, 10 generally at right-angles to the axis of vision V1, in which a dial indicator 2, here a speedometer, warning lights 5 and displays 3, 4, here of LCD (liquid crystal display) type, have been fitted, and, here, two lateral parts generally parallel to the axis of vision V1, on 15 the left 8 and right 9, in which dial indicators have been fitted, one indicator 11 on the left and a second indicator 14 on the right of the standard instrument panel.

20 The parts 8, 9, 10 of the instrument panel, and with them the on-board instruments including the indicators 2, 11, 14, the warning lights 5 and the LCD displays 3, 4, are protected by a single semi-reflecting window 6, 12, and 13, described below.

25 The part 10 of the instrument panel, on the one hand, and the parts 8 and 9, on the other hand, are respectively generally at right-angles and generally parallel to the axis of vision V1 of the driver of the 30 vehicle.

In addition, the parts of the instrument panel 8 and 10 on the one hand, and 9 and 10, on the other hand, are respectively arranged on either side of the parts 12 35 and 13 of the window.

Here, the parts 8 and 9 of the instrument panel, generally parallel to the axis of vision V1, lie

sideways to the frontal part 10 of the instrument panel, extending from it.

5 The window, here in one piece, is formed of three parts, one frontal part 6, and two other lateral parts, on the left 12 and right 13, and is arranged to protect the three parts of the instrument panel described above, respectively the parts 10, 8, and 9.

10 The window is also arranged to enable the on-board instruments to be viewed normally, whether they are arranged at right-angles or parallel to the axis of vision V1.

15 For this purpose, the left-hand lateral part 12 and right-hand lateral part 13 of the window are semi-reflecting and inclined at an angle α in relation to the frontal part 10 of the instrument panel so as to reflect toward the driver the image of instrument 11 or 20 14, arranged generally parallel to the axis of vision V1, along the optical path V2, of which a portion is perpendicular to the axis of vision and the other portion parallel to this axis.

25 In the instrument panel described here, the frontal part 6 of the window is set back in relation to the forward edges 22, 23 of the inclined side parts 12, 13, of the window, to which it is connected by the window portions 32, 33 parallel to the axis of vision. The 30 window therefore has here an irregular zigzag shape.

These parts of the window being semi-reflecting, they nevertheless allow the driver to see, in direct vision V3 through them, the displays and warning lights 3, 4, 35 5, or any other indicator which is arranged on the frontal part of the instrument panel, behind them.

The frontal part 6 of the window can also provide the same function in relation to any indicators or other

instruments which are arranged in the top of the dashboard, its angle then being determined in relation to the horizontal plane of the dashboard and therefore to the axis of vision.

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The fact that the free space at the lateral sides of the instrument cluster in the dashboard is not limited makes it possible to fit into it sideways additional displays of whatever size.

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For example, the lateral parts of the instrument panel just disclosed can be used to create a light box for the frontal displays and hide these from the passenger seated beside the driver.